

REMARKS

Status of the Application

Claims 1, 4-9 and 11-15 are currently pending in the application for consideration by the Examiner. By this amendment, claims 1 and 15 will have been amended and claims 2, 3 and 10 will have been canceled.

Accordingly, reconsideration of the pending rejections is requested in view of the instant amendment and the accompanying remarks.

Amendments to Claims 1 and 15 are Fully Supported by the Original Disclosure

The above amendments does not add new matter to the application and are fully supported by the specification, wherein such support may be found, *inter alia*, at paragraphs 48, 66-70, 76 and Figures 6 and 7(a)-(e).

Claim Objections

The Office Action objected to the numbering of the claims in the previous Amendment. Applicants have amended the numbering in the listing of claims to address this issue.

Section 112 Rejections

The Office Action rejected claim 14b (referred to in this way due to the numbering error in the previous amendment) of the present application for being indefinite with regard to the claim being inconsistent with claim 1 from which it depends. Applicants have amended claim “14b” (now claim 15) to remove the inconsistency.

Section 102 Rejections

The Office Action rejected independent claim 1 of the present application under 35 U.S.C. § 102 as being anticipated by the Casimari reference. As amended, independent claim 1 of the present application includes the feature of a means to detect peaks in a current flowing between the working and counter electrode as an applied voltage is varied, wherein the

peaks in the current flowing between the working and counter electrodes are produced by oxidation or reduction of the first and the second redox systems and wherein the first and the second redox systems are sensitive to the same species, but produce peak current flows at different applied potentials.

Applicants respectfully submit that the Casimari reference does not teach or suggest the feature of detecting peaks produced at two different potentials by the oxidation/reduction of two redox species sensitive to the same species. To the contrary, the Casimari reference describes using an LOD enzyme to catalyse the oxidation of L-lactate to pyruvate, which substance is detected by the oxygen electrode (*see* Casimari at p.786) and a second enzyme, LDH, is used to amplify the response by recycling the pyruvate back to L-lactate. Therefore, the two enzymes described by Casimari are not intended to, and do not, undergo a redox reaction with the same species, as provided in independent claim 1, and as a consequence it is not possible to detect peaks produced at two different potentials by the oxidation/reduction of two redox species as provided in independent claim 1 as amended.

Consequently, the Casimari reference does not teach all of the features of independent claim 1 as amended. As such, Applicants respectfully request that the Section 102 rejection of independent claim 1 and the claims depending from it be withdrawn.

The Office Action also rejected independent claim 1 of the present application under 35 U.S.C. § 102 as being anticipated by United States Patent Pub. No. 2002/0090632 to Buck ("Buck"). The Buck reference describes an amperometric measurement system in which a current flow under a bipotentiostatic control is measured and the amount of current flow is used to determine a concentration of an analyte. (*See* Buck at ¶5) ("The current detected at either one of the working electrodes will be a function of analyte concentration."). Buck does not teach a voltammetric system as provided in the present application, in which peak location, not height, is used to determine analyte concentration.

Buck does not teach the feature of independent claim 1 of detecting peaks produced at two different potentials by the oxidation/reduction of two redox species sensitive to the same species. Moreover, because the Buck system is based on a completely different electrochemical

technique to that described in the present application, Buck would not have suggested to one of ordinary skill in the art at the time the present invention was made the feature of independent claim 1 of detecting peaks produced at two different potentials by the oxidation/reduction of two redox species sensitive to the same species.

To the contrary, Buck teaches away from using two redox species sensitive to the same species since in Buck separate current peaks are produced by different redox molecules, the osmium-bipyridyl complex conjugates or other electroactive conjugates, which are each sensitive to a different species. (See Buck at ¶8) (“The present invention provides novel osmium-bipyridyl complex conjugates useful in a method for measuring multiple analyte species in the same sample”). In Buck, the difference in redox potentials of the redox reversible species is used so that each of the redox reversible species can be used to detect a different species without significant interference from the other redox reversible species. (See Buck at ¶87). Furthermore, in Buck it is claimed that the use of multiple redox reversible species each sensitive to a different species in a single sensor increases accuracy over a sensing system where the different species are detected separately. (See Buck at ¶8) (“The present invention provides novel osmium-bipyridyl complex conjugates useful in a method for measuring multiple analyte species in the same sample, and optimally on the same electrode structure, thus improving the accuracy of the relative measurements.”).

Consequently, because the Buck reference does not teach all of the features of independent claim 1 as amended, Applicants respectfully request that the Section 102 rejection of independent claim 1 and the claims depending from it be withdrawn.

Section 103 Rejections

The Office Action rejected independent claim 1 of the present application under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,223,117 to Wrighton *et al.* (“Wrighton”) in view of Casimari and Buck.

The Wrighton reference provides no teaching and would not have suggested to one of ordinary skill in the art at the time the present invention was made that two different redox

systems, which are both sensitive to the same chemical species, could provide an effective sensor system/detection methodology. Wrighton does not teach nor even mention nor address how redox systems sensitive to the same species may affect one another when disposed as a working electrode, the likelihood of success of such a combination and/or whether an output from such a configuration would be useful.

As such, Wrighton, like Casimari and Buck, does not teach the feature of independent claim 1 of detecting peaks produced at two different potentials by the oxidation/reduction of two redox species sensitive to the same species. Consequently, Applicants respectfully submit that the combination of the Wrighton, Casimari and Buck references does not teach or suggest all of the features of independent claim 1 as amended, because none of the references teaches or suggests detecting peaks produced at two different potentials by the oxidation/reduction of two redox species sensitive to the same species. Moreover, as provided in the present application, the use of two redox systems sensitive to the same species provides a synergistic effect with respect to increased sensor sensitivity, which effect would not have been suggested to one of ordinary skill in the art at the time of the present invention by the Wrighton, Casimari and Buck references. (*See* Application at p.14, line 21 through p.15, line 12).

Applicants respectfully request that the Section 103(a) rejections be withdrawn because the combination of the references used to reject independent claim 1 do not teach all of the features of the amended claim.

CONCLUSION

In view of the foregoing, it is submitted that the references of record do not anticipate and would not have rendered obvious Applicants' invention, as recited in each of claims 1, 4-9 and 11-15. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate. Should the Examiner have any questions or comments, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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